



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/712,351

11/13/2003

Xueping Xu

ATMI-685

1430

23448

7590

02/12/2007

INTELLECTUAL PROPERTY / TECHNOLOGY LAW

PO BOX 14329

RESEARCH TRIANGLE PARK, NC 27709

EXAMINER

SPEER, TIMOTHY M

ART UNIT

PAPER NUMBER

1775

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/712,351

Applicant(s)

XU ET AL.

Examiner

Timothy M. Speer

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 10-120 is/are pending in the application.
- 4a) Of the above claim(s) 52-120 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/27/06

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 and 10-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Evelyn (USPN 6,806,508).

D'Evelyn teaches III-V nitride materials, i.e., GaN, having a dislocation density of less than about  $10^5 \text{ cm}^{-2}$  (abstract and col. 6, lines 8-13, for instance). Accordingly, the materials of D'Evelyn have dislocation densities within the ranges recited in the present claims. D'Evelyn further teaches that the materials are formed as boules having varying lengths, e.g., about 0.05 cm to about 30 cm, and diameters, e.g., about 5 cm to about 15 cm (col. 4, lines 61-67, for example). Given these dimensions, D'Evelyn suggests materials having an area of at least  $15 \text{ cm}^2$ , as presently claimed. To select a range of surface area from that disclosed by D'Evelyn would have been obvious to one having ordinary skill in the art, since D'Evelyn suggests such ranges. The materials of D'Evelyn may be used to form various electronic devices, such as optoelectronic devices, including photodetectors.

D'Evelyn teaches that the boules disclosed therein may be cut into wafers having a desired thickness, such as about 0.01 mm to 10 mm (col. 6, lines 14-32). Therefore, D'Evelyn suggests the thicknesses recited in instant claims 16 and 21-24. Additionally, D'Evelyn teaches

Art Unit: 1775

that the materials may be polished and shaped according to methods known in the art, such as assisted ion beam etching and chemo-mechanical polishing (col. 6, lines 20-26).

Moreover, D'Evelyn teaches that the materials may include dopants, including n-type dopants such as silicon and oxygen (col. 9, lines 25-27).

Regarding the presently claimed characteristic of DDSDR set forth in claims 14-16 and 38-40, since the materials of D'Evelyn are the same as those presently claimed and have the same dislocation density, it is the Examiner's position that the materials will inherently exhibit the presently claimed DDSDR characteristics. Discovering an inherent property of a prior art material is not considered to be inventive.

In light of the above, it is the Examiner's position that the present claims are *prima facie* obvious in view of D'Evelyn.

### ***Response to Arguments***

3. Applicant's arguments filed 11/27/06 have been fully considered but they are not persuasive. Applicant asserts that the applied prior art reference to D'Evelyn is not enabled with respect to the claimed subject matter regarding the size of the claimed crystals. This argument has been considered, but, as discussed below, is not found to be persuasive.

4. As an initial matter, the Examiner notes that applicant's assertions regarding enablement consist of attorney argument. It is well settled, however, that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Indeed, as stipulated by MPEP 716.01(c),

"[o]bjective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected

Art Unit: 1775

results, commercial success, solution of a long-felt need, **inoperability of the prior art**, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant" (emphasis added).

In the present case, applicant has failed to adduce such evidence and such arguments are of no probative value. Applicant simply relies on the arguments of counsel.

5. Regarding the D'Evelyn reference submitted with applicant's response, the absence of an explicit example therein having the claimed area does NOT demonstrate that the applied prior art reference is not enabled. Again, this assertion by applicant is simply unsupported by evidence, merely relying on argument of counsel. As such, this argument is not persuasive.

#### *Conclusion*

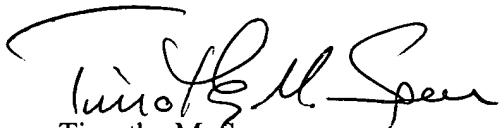
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M. Speer whose telephone number is 571-272-8385. The examiner can normally be reached on M-Th, M-F.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

Art Unit: 1775

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Timothy M. Speer



**JOHN J. ZIMMERMAN**  
**PRIMARY EXAMINER**